

WHAT IS CLAIMED IS:

1. A cell-free system for predicting the cellular activity of an agent comprising:
  - a probe molecule;
  - the agent;

5 a source of light radiation; and

  - a detector.
2. The system according to claim 1, wherein the agent is selected from the group consisting of antimicrobials and preservatives.
3. The system according to claim 1, wherein the probe molecule is a dye molecule
- 10 4. The system according to claim 1, wherein the probe molecule is Eosin Y.
5. The system according to claim 1, wherein the probe molecule acts as a surrogate for a microbial cell membrane.
6. The system according to claim 1, further including a calibration graph, whereby information provided by the detector may be analyzed using the calibration graph to predict the activity of the agent.
- 15 7. The system according to claim 1, wherein the agent is part of a composition selected from the group consisting of contact lens care, antibiotic, disinfection, and preservative compositions.
8. A cell-free system for predicting the activity of an antimicrobial agent
- 20 comprising:
  - a dye molecule;
  - an antimicrobial composition containing the antimicrobial agent;
  - a source of light radiation; and

a detector.

9. The system according to claim 8, wherein the dye molecule is Eosin Y.
10. The system according to claim 8, further including a graph of antimicrobial activity versus light absorption that is calibrated for the system.
- 5 11. A method of predicting an agent's cellular activity, comprising:
  - 10 placing a probe molecule and the agent together to form a cell-free test composition, wherein the probe molecule contains a chromophore and the agent reacts with the probe molecule to change the chromophore interaction with light radiation, and further wherein said change is correlated with the activity of the agent; and
  - 15 comparing (a) the resulting chromophore interaction with the light radiation in the test composition with (b) the chromophore interaction with light radiation in the composition in the absence of the agent to determine the agent's cellular activity.
- 15 12. The method according to claim 11, wherein the agent is selected from the group consisting of antimicrobials and preservatives.
13. The system according to claim 11, wherein the agent is part of a composition selected from the group consisting of contact lens care, antibiotic, disinfection, and preservative compositions.
- 20 14. The method according to claim 11, wherein the probe molecule is a dye molecule.
15. The method according to claim 11, wherein the probe molecule is Eosin Y.
16. The method according to claim 11, wherein the probe molecule acts as a surrogate for a microbial cell membrane.

17. The method according to claim 11, further comprising a step of predicting the activity of the agent by analyzing information provided by the comparing step using a calibration graph.

18. The method according to claim 11, further including the steps of blanking a spectrophotometer with a placebo composition that does not contain the agent and measuring the absorbance of the test composition.

19. A method to predict an agent's cellular activity, comprising placing a cell-free composition containing a probe molecule and the agent in an instrument comprising a source of light radiation and a detector, wherein the probe molecule contains a chromophore and the agent reacts with the probe molecule to change the chromophore interaction with the light radiation, and further wherein said change is correlated with the cellular activity of the agent.

20. The method according to claim 19, wherein the agent is selected from the group consisting of antimicrobials and preservatives.

15 21. The method according to claim 19, wherein the agent is part of a composition selected from the group consisting of contact lens care, antibiotic, disinfection, and preservative compositions.

22. The method according to claim 19, wherein the probe molecule is a dye molecule.

23. The method according to claim 19, wherein the probe molecule is Eosin Y.

20 24. The method according to claim 19, wherein the probe molecule acts as a surrogate for a microbial cell membrane.

25. The method according to claim 19, further including the step of blanking the instrument with a placebo solution that does not contain the agent.

26. The method according to claim 19, further including the step of measuring the absorbance of the composition.

27. A method of predicting an agent's cellular activity, comprising:

5 placing a probe molecule and the agent together to form a cell-free test composition, wherein the probe molecule contains a chromophore and the agent reacts with the probe molecule to change the chromophore interaction with light radiation, and further wherein said change is correlated with the activity of the agent; and

10 comparing the absorbance or emission of the test composition to a calibration plot comparing previously determined cellular activity to probe absorption or emission.

28. The method according to claim 27, wherein the agent is selected from the group consisting of antimicrobials and preservatives.

29. The method according to claim 27, wherein the agent is part of a composition 15 selected from the group consisting of contact lens care, antibiotic, disinfection, and preservative compositions.

30. The method according to claim 27, wherein the probe molecule is a dye molecule.

31. The method according to claim 27, wherein the probe molecule is Eosin Y.

32. The method according to claim 27, wherein the probe molecule acts as a surrogate 20 for a microbial cell membrane.

33. The method according to claim 27, further including the steps of blanking a spectrophotometer with a placebo composition that does not contain the agent and measuring the absorbance of the test composition.

34. A method of predicting an agent's cellular activity, comprising:

placing a probe molecule and the agent together to form a cell-free test

composition, wherein the probe molecule contains a chromophore and the agent reacts with the probe molecule to change the chromophore interaction with light

5 radiation;

placing the test composition in an instrument comprising a source of light radiation and a detector;

obtaining a difference spectrum;

comparing the absorbance of the test composition to a calibration plot

10 comparing previously determined activity to probe molecule change in absorption  
at a selected wavelength.

35. The method according to claim 34, wherein the agent is selected from the group consisting of antimicrobials and preservatives.

36. The method according to claim 34, wherein the agent is part of a composition  
15 selected from the group consisting of contact lens care, antibiotic, disinfection, and preservative compositions.

37. The method according to claim 34, wherein the probe molecule is a dye molecule.

38. The method according to claim 34, wherein the probe molecule is Eosin Y.

39. The method according to claim 34, further including the steps of blanking the  
20 instrument with a placebo composition consisting of all ingredients of the test  
composition except the agent and measuring the change in absorbance of the test  
composition.

40. A method for identifying a probe molecule that may be used to predict an agent's activity against a cellular target, the method comprising:

identification of a probe molecule that can interact with the agent in a manner to some degree similar to the interaction of the agent with the target, wherein the probe 5 molecular acts as a chromophore and the agent reacts with the probe molecule to change the chromophore interaction with light radiation;

conducting of interaction studies of the probe molecule with the agent.

41. The method as in claim 40, wherein the target is a cell membrane.

42. The method as in claim 40, wherein the probe molecule and the agent have the 10 same charge sign.

43. The method as in claim 40, wherein the probe molecule and the agent are neutral.

44. The method as in claim 40, wherein the probe molecule and the agent have opposite charges.